BOEM ENVIRONMENTAL STUDIES PROGRAM: Planned New Study

Region: Pacific

Planning Area(s): All

Title: Understanding and Mitigating the Effects of Marine Renewable Energy Technologies on the Coastal and Marine Environment in the Pacific OCS Region (PC-14-05)

BOEM Information Need(s) to be Addressed: The purpose of this study is to research the effects of marine renewable technologies, including marine hydrokinetic (MHK) and offshore wind devices, on the coastal and marine environments, and to develop effective mitigation strategies to reduce or avoid potential impacts from renewable technologies in the Pacific Region. With the Energy Policy Act of 2005 (EPAct) authorization to regulate OCS renewable energy, new program considerations for BOEM include the regulation of a newly emerging offshore industry that will involve the deployment of prototype technology with uncertain environmental and engineering implications. As such, the safety and protection of the environment from this newly emerging industry are generally unknown, and the study of emerging technologies and monitoring renewable energy projects of opportunity in the Pacific Region shall provide effective analysis, mitigation, and management of those sources. Environmental monitoring data of offshore renewable energy projects and applications would be used by BOEM to evaluate mitigation measures and project conditions of future OCS renewable energy projects and operations. In order for BOEM to make better decisions on renewable energy project siting, installation, and operations, the bureau needs to monitor and observe the operations in the field for environmental impacts and develop mitigation measures to ensure safe and environmentally sound projects. Information from the renewable energy monitoring studies will help decisionmakers develop more feasible and scientifically defensible regulatory oversight of projects and mitigation measures to ensure the key EPAct mandates of safety and protection of the environment.

Total BOEM Cost: TBD **Period of Performance:** FY 2014-2019

Conducting Organization: TBD

Principal Investigator: TBD

BOEM Contact: Mark Eckenrode

Description:

Background: With the passage of the EPAct and amendments to the Outer Continental Shelf Lands Act (OCSLA), the Secretary of Interior was granted authority to regulate the production, transportation, or transmission of renewable energy sources on the OCS. Examples of OCS renewable energy include wind, wave, tidal, solar, and hydrogen.

An integral part of implementing the EPAct and OCSLA requires BOEM to conduct NEPA environmental reviews and to prepare environmental documents, such as environmental impact statements and environmental assessments on renewable energy projects. In order to conduct these environmental evaluations, BOEM requires environmental data regarding the potential environmental impacts associated with offshore renewable energy technologies and facilities to assist Pacific Region decisionmakers prior to issuance of leases and rights-of-way. Many of the environmental documents developed for those projects will require environmental mitigation measures and associated permit conditions in subsequent decision documents. Demonstrated compliance with mitigation measures and project conditions will allow BOEM to ensure that OCS renewable energy projects proceed in an environmentally sound and timely manner.

This study is a re-design of the former *Environmental Mitigation Monitoring* (PC-01-07) study, which initially commenced in FY 1997, had contract continuations in FY 2002 and FY 2008, and is scheduled to end in mid-FY 2013. These successful studies resulted in 12 Task Orders primarily designed to evaluate, through field monitoring and observations, environmental mitigation effectiveness of measures and project conditions required of post-lease Pacific OCS oil and gas operations. Examples of successful Task Orders included multiple disciplines involving marine and coastal birds, marine mammals, H_2S dispersion zones, produced water studies, physical and chemical profiling of Pacific OCS shell mounds, abandoned well-head surveys, etc. This study model will now be applied exclusively to the offshore renewable energy sector.

Objectives: The study objectives are to research, observe, sample, and/or monitor offshore renewable energy applications and technologies in the Pacific Region to determine potential environmental effects on the coastal and marine environment. Additional objectives will be the evaluation of the technologies and commensurate impacts to develop technology specific mitigation measures, best management practices, and project conditions to ensure safe and environmentally sound renewable energy applications. The study will provide BOEM with the needed information and ability to comply with BOEM regulations, NEPA requirements, and other bureau requirements.

Methods: Methodology may consist of actual site monitoring to determine the environmental effects of various renewable energy device technologies and applications. Although the Pacific Coast of the U.S. will be the primary focus of actual site or project monitoring initially utilizing offshore renewable projects proposed off Oregon, all areas within the Pacific Region may be reviewed or studied as appropriate. Additional research may include, but not be limited to, literature surveys, oceanographic and sediment modeling, and summary of knowledge reviews. Examples of potential future field monitoring studies in conjunction with Pacific Region projects of opportunity could include (1) An assessment of the potential effects of renewable energy equipment on nearshore wave energy conditions; (2) Potential alteration of nearshore sediment movement from various MHK technologies; (3) Transmission cable installation techniques in deep-sea environments; (4) Infrastructure needs to support offshore wind and MHK facilities; (5) The effects of offshore renewable facilities on navigational and communication systems; and (6) The monitoring and measuring of noise effects from the installation and operation of offshore renewable energy devices. The type of data collected will be determined by Pacific Region

environmental managers and scientists as specified by the particular project, and would depend on the specified approval conditions.

Current Status: This study is expected to be awarded through a competitive choice from a GSA list.

Final Report Due: TBD

Publications Completed: None at this time.

Affiliated WWW Sites: None at this time.

Revised Date: September 13, 2013